

IN THE UNITED STATES DISTRICT COURT  
FOR THE NORTHERN DISTRICT OF CALIFORNIA  
SAN JOSE DIVISION

Avago Technologies General IP  
PTE Ltd., et al.,

NO. C 04-05385 JW

Plaintiffs,

v.

Elan Microelectronics Corp., et al.,

Defendants.

**ORDER GRANTING ELAN'S MOTION  
FOR SUMMARY JUDGMENT OF  
INVALIDITY OF CLAIM 14 OF THE '804  
PATENT; DENYING CROSS-MOTIONS  
FOR SUMMARY JUDGMENT ON ISSUE  
OF INFRINGEMENT OF CLAIM 14 OF  
THE '804 PATENT AS MOOT**

**I. INTRODUCTION**

Plaintiffs Avago Technologies General IP PTE Ltd. and Avago Technologies ECBU IP PTE Ltd. (collectively, "Avago") brings this action against Defendants Elan Microelectronics Corp. and Elan Information Technology Group (collectively, "Elan") alleging infringement of U.S. Patent Nos. 5,786,804 (the "'804 Patent") and 6,433,780 (the "'780 Patent"). Elan sells optical mouse sensor chips to manufacturers of optical mice.

Presently before the Court is Elan's Motion for Summary Judgment of Invalidity of the '804 Patent. (hereafter, "Motion," Docket Item No. 239.) The Court conducted hearings on August 1, 2007 and June 20, 2008. Based on the papers submitted to date and oral argument of counsel, the Court GRANTS Elan's Motion for Summary Judgment.

**II. BACKGROUND**

The technology at issue relates to optical mice. A complete background of the technology is contained in the Court's August 18, 2006 Claim Construction Order. The '780 Patent, "Seeing Eye Mouse for a Computer System," discloses an optical mouse that images as an array of pixels the

1 spatial features of a work surface below the mouse. ('780 Patent, Col. 2:66-3:3.) The '804 Patent,  
2 "Method and System for Tracking Attitude," discloses a method and system for tracking attitude of a  
3 device by fixing a two-dimensional array of photosensors to the device and using the array to form a  
4 reference frame and a sample frame of images. ('804 Patent, Col. 3:6-34.)

5 **A. The '804 Patent and the Prior Art**

6 Since it is particularly at issue with respect to Elan's motion, the Court reviews the  
7 technology of the '804 Patent. The '804 Patent was filed on October 6, 1995. Its Abstract discloses  
8 the following:

9 A method and system for tracking attitude of a device [which] includes fixing a  
10 two-dimensional array of photosensors to the device and using the array to form a reference  
11 frame and a sample frame of images. The fields of view of the sample and reference frames  
12 largely overlap, so that there are common imaged features from frame to frame. Sample  
13 frames are correlated with the reference frame to detect differences in location of the  
14 common features. Based upon detection of correlations of features, an attitudinal signal  
15 indicative of pitch, yaw, and/or roll is generated. In the preferred embodiment, the attitudinal  
16 signal is used to manipulate a screen cursor of a display system, such as a remote interactive  
17 video system (RIVS). However, attitudinal tracking using the invention may be employed in  
18 other applications. Another aspect of the invention is that the two-dimensional array is  
19 configured to compensate for any curvilinear distortions introduced by a lens system for  
20 imaging the features within the field of view of the array.

21 ('804 Patent, Abstract.) In practice, the technology claimed in the '804 Patent allows a user to  
22 manipulate a "hand-holdable device" or controller to move a cursor on a video screen. (*Id.*, Col.  
23 3:5-4:50, Claim 14.) The technology tracks the movement of the device and sends a signal which  
24 causes the cursor to move in a corresponding fashion. Movement is calculated by correlating a  
25 sample frame image with a previously taken reference frame image. The overlap between the two  
26 images reveals the direction and distance in which the device is moved. (*Id.*) One issue in this case  
27 is whether an optical mouse is literally encompassed by the claims of '804 Patent.

28 Xerox Corporations' U.S. Patent No. 4,794,384 (the "'384 Patent"), which was filed on April  
9, 1987, describes a similar technology that more clearly relates to an optical mouse device. The  
Abstract of the '384 Patent discloses the following:

An optical translator device capable of providing information indicative of the amount and  
direction of relative movement between the device and a surface positioned relative thereto.  
The device comprises a light source for providing at least partially coherent radiation and the

1 source radiation is directed toward an area of the surface area. The reflected coherent  
2 radiation or light at the surface area undergoes optical interference due to the texture of the  
3 surface thereby forming a speckle pattern consisting of light and dark features. A detector  
4 array at the device comprises a plurality of photodetector cells and [is] positioned in the path  
5 to receive the reflected light and to detect the light and dark features as represented by the  
6 cells in the array detecting light features in the reflected light thereby representative of a  
7 sample of the speckle pattern. Means is provided to compare consecutively produced  
8 samples which are indicative of the translatory information. A particular application of the  
9 optical translator device is a novel optical cursor control device which derives its translatory  
10 information from movement on substantially any sufficiently reflective surface. The output  
11 of the detector array is provided to circuit means to produce signals indicative of the amount  
12 and direction of relative cursor control device movement over the surface based upon  
13 observation of changes and movement of the speckle pattern as presented to the detector  
14 array. Such a device can be characterized as a “padless optical mouse” to provide orthogonal  
15 signals to move a cursor from position to position on a display screen in response to  
16 movement of the mouse over any sufficiently reflective surface, such as a desk top.

17 (‘384 Patent, Abstract.) The ‘384 Patent describes a “padless optical mouse” which allows a user to  
18 control a cursor on a display screen. (*Id.*, Col. 2:53-60.) The device uses a light source to illuminate  
19 a work surface, such as a desktop. (*Id.*, Col. 2:60-65.) The illumination is reflected to an array of  
20 photodetector cells which detect an image comprising a pattern of light and dark spots, which the  
21 patent refers to as a “speckle pattern.” (*Id.*, Col. 3:3-13.) Similar to the ‘804 Patent, sample images  
22 are compared to produce signals which are indicative of the amount and direction of the movement  
23 of the device over the work surface. (*Id.*, Col. 3:13-29.)

24 **B. Procedural History**

25 On December 20, 2004, this case was filed by Agilent Technologies, Inc. (“Agilent”).  
26 (Docket Item No. 1.) However, on May 10, 2006, the parties filed a stipulation that Agilent’s entire  
27 right, title and interest in the patents-in-suit had been transferred and assigned to Avago. (Docket  
28 Item No. 84.) Therefore, Avago substituted for Agilent in the case. (*Id.*)

On May 9, 2006, the Court held a hearing in accordance with Markman v. Westview  
Instruments, Inc., 517 U.S. 370 (1996), to construe the disputed terms and phrases of the asserted

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claims. (Docket Item No. 85.) The Court's August 18, 2006 and June 13, 2007 Claim Construction Orders<sup>1</sup> construed the following disputed terms in the '804 Patent:

Disputed Claim Language	Court's Construction
"tracking movement of the device relative to a region of an environment in which said device resides"	"tracking movement of the device relative to a region of the three-dimensional space in which said device may operate"
"periodically forming largely overlapping images of a field of view of said array"	"acquiring optoelectric signals from an array of photosensors and, using circuitry, converting the signals to values which represent the field of view to which the array is being exposed at discrete points in time. The substep of forming an image is not otherwise limited to any particular process. This substep includes processing of the signals from acquisition up to but not including storing as a frame"
"storing a first image as a reference image"	"storing a first set of pixel values representing that which is captured by the array of photosensors as the reference image"

On February 8, 2007, the Court denied Elan's motion for summary judgment of non-infringement of the '804 Patent pending further construction of the disputed terms. Presently before the Court is Elan's motion for summary judgment of invalidity of the '804 Patent.

### **III. STANDARDS**

#### **A. General Principles of Claim Construction**

Claim construction is a matter of law, to be decided exclusively by the Court. Markman v. Westview Instruments, Inc., 517 U.S. 370, 387 (1996). When the meaning of a term used in a claim is in dispute, the Court invites the parties to submit their respective proposed definitions and a brief, outlining the basis for their proposals. In addition, the Court conducts a hearing to allow oral argument of the respective proposed definitions. After the hearing, the Court takes the matter under

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<sup>1</sup> (August 18, 2006 Claim Construction Order, hereafter, "First Claim Construction Order," Docket Item No. 103; June 13, 2007 Claim Construction Order, hereafter, "Second Claim Construction Order," Docket Item No. 290.)

1 submission, and issues an Order construing the meaning of the term. The Court's construction  
2 becomes the legally operative meaning of the term that governs further proceedings in the case.  
3 Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582 (Fed. Cir. 1996). The Court recognizes  
4 that claim construction is a fluid process, wherein the Court may consider a number of extrinsic  
5 sources of evidence so long as they do not contradict the intrinsic evidence. However, the Court  
6 acknowledges that greater weight should always be given to the intrinsic evidence. Phillips v. AWH  
7 Corp., 415 F.3d 1303, 1324 (Fed. Cir. 2005).

8 **B. Construction from the View Point of an Ordinarily Skilled Artisan**

9 A patent's claims define the scope of the patent: the invention that the patentee may exclude  
10 others from practicing. Id. at 1312. The Court generally gives the patent's claims their ordinary and  
11 customary meaning. In construing the ordinary and customary meaning of a patent claim, the Court  
12 does so from the viewpoint of a person of ordinary skill in the art at the time of the invention, which  
13 is considered to be the effective filing date of the patent application. Thus, the Court seeks to  
14 construe the patent claim in accordance with what a person of ordinary skill in the art would have  
15 understood the claim to have meant at the time the patent application was filed. This inquiry forms  
16 an objective baseline from which the Court begins its claim construction. Id.

17 The Court proceeds from that baseline under the premise that a person of ordinary skill in the  
18 art would interpret claim language not only in the context of the particular claim in which the  
19 language appears, but also in the context of the entire patent specification, of which it is a part. Id.  
20 at 1313. Additionally, the Court considers that a person of ordinary skill in the art would consult the  
21 rest of the intrinsic record, including any surrounding claims, the drawings, and the prosecution  
22 history—if it is in evidence. Id.; Teleflex, Inc. v. Fiosa N. Am. Corp., 299 F.3d 1313, 1324 (Fed.  
23 Cir. 2002). In reading the intrinsic evidence, a person of ordinary skill in the art would give  
24 consideration to whether the disputed term is a term commonly used in lay language, a technical  
25 term, or a term defined by the patentee.

**C. Commonly Used Terms**

In some cases, disputed claim language involves a commonly understood term that is readily apparent to the Court. In such a case, the Court considers that a person of ordinary skill in the art would give to it its widely accepted meaning, unless a specialized definition is stated in the patent specification or was stated by the patentee during prosecution of the patent. In articulating the widely accepted meaning of such a term, the Court may consult a general purpose dictionary. Phillips, 415 F.3d at 1314.

**D. Technical Terms**

If a disputed term is a technical term in the field of the invention, the Court considers that one of skill in the art would give the term its ordinary and customary meaning in that technical field, unless a specialized definition is stated in the specification or during prosecution of the patent. In arriving at this definition, the Court may consult a technical art-specific dictionary or invite the parties to present testimony from experts in the field on the ordinary and customary definition of the technical term at the time of the invention. Id.

**E. Defined Terms**

The Court acknowledges that a patentee is free to act as his or her own lexicographer. Acting as such, the patentee may use a term differently than a person of ordinary skill in the art would understand it, without the benefit of the patentee's definition. Vitronics Corp., 90 F.3d at 1582. Thus, the Court examines the claims and the intrinsic evidence to determine if the patentee used a term with a specialized meaning.

The Court regards a specialized definition of a term stated in the specification as highly persuasive of the meaning of the term as it is used in a claim. Phillips, 415 F.3d at 1316-17. However, the definition must be stated in a clear words, which make it apparent to the Court that the term has been defined. See id.; Vitronics Corp., 90 F.3d at 1582. If the definition is not clearly stated or cannot be reasonably inferred, the Court may decline to construe the term pending further proceedings. Statements made by the patentee in the prosecution of the patent application as to the

1 scope of the invention may be considered when deciding the meaning of the claims. Microsoft  
2 Corp. v. Multi-Tech Systems, Inc., 357 F.3d 1340, 1349 (2004). Accordingly, the Court may also  
3 examine the prosecution history of the patent when considering whether to construe the claim term  
4 as having a specialized definition.

5 In construing claims, it is for the Court to determine the terms that require construction and  
6 those that do not. See U.S. Surgical Corp. v. Ethicon, Inc., 103 F.3d 1554, 1568 (Fed. Cir. 1997).  
7 Moreover, the Court is not required to adopt a construction of a term, even if the parties have  
8 stipulated to it. Pfizer, Inc. v. Teva Pharmaceuticals, USA, Inc., 429 F.3d 1364, 1376 (Fed. Cir.  
9 2005). Instead, the Court may arrive at its own constructions of claim terms, which may differ from  
10 the constructions proposed by the parties.

11 **F. Summary Judgment**

12 The standard for summary judgment does not change in a patent case. Conroy v. Reebok  
13 Int'l, Ltd., 14 F.3d 1570, 1575 (Fed. Cir. 1994). Summary judgment is proper “if the pleadings,  
14 depositions, answers to interrogatories, and admissions on file, together with the affidavits, if any,  
15 show that there is no genuine issue as to any material fact and that the moving party is entitled to  
16 judgment as a matter of law.” Fed. R. Civ. P. 56(c). The purpose of summary judgment “is to  
17 isolate and dispose of factually unsupported claims or defenses.” Celotex v. Catrett, 477 U.S. 317,  
18 323-24 (1986). The moving party “always bears the initial responsibility of informing the district  
19 court of the basis for its motion, and identifying the evidence which it believes demonstrates the  
20 absence of a genuine issue of material fact.” Id. at 323. The non-moving party must then identify  
21 specific facts “that might affect the outcome of the suit under the governing law,” thus establishing  
22 that there is a genuine issue for trial. Fed. R. Civ. P. 56(e).

23 When evaluating a motion for summary judgment, the court views the evidence through the  
24 prism of the evidentiary standard of proof that would pertain at trial. Anderson v. Liberty Lobby  
25 Inc., 477 U.S. 242, 255 (1986). The court draws all reasonable inferences in favor of the non-  
26 moving party, including questions of credibility and of the weight that particular evidence is

accorded. See, e.g., Masson v. New Yorker Magazine, Inc., 501 U.S. 496, 520 (1992). The court determines whether the non-moving party's "specific facts," coupled with disputed background or contextual facts, are such that a reasonable jury might return a verdict for the non-moving party. T.W. Elec. Serv., 809 F.2d at 631. In such a case, summary judgment is inappropriate. Anderson, 477 U.S. at 248. However, where a rational trier of fact could not find for the non-moving party based on the record as a whole, there is no "genuine issue for trial." Matsushita Elec. Indus. Co. v. Zenith Radio, 475 U.S. 574, 587 (1986).

#### IV. DISCUSSION

Elan moves for summary judgment of invalidity of Claim 14 of the '804 Patent on the ground that it is anticipated by the '384 Patent. (Motion at 5.) Avago contends that the construction of "images of a field of view of said array" as it is used in Claim 14 of the '804 patent must be revisited by the Court prior to determining whether to grant Elan's motion.<sup>2</sup> The Court proceeds (1) to consider whether further construction of the disputed phrase in Claim 14 of the '804 Patent is necessary, and (2) to examine whether Claim 14 is anticipated.

##### A. Construction of Claim 14 of the '804 Patent

The Court considers whether further construction of the phrase "images of a field of view of said array" is required.

Claim 14 of the '804 Patent provides:<sup>3</sup>

A method of controlling movement of a cursor of a video display comprising steps of: providing a hand-holdable device having a two-dimensional array of photosensors; tracking movement of said device relative to a region of an environment in which said device resides, including substeps of:

- (a) periodically forming largely overlapping **images of a field of view of said array**;
- (b) storing a first image as a reference image;
- (c) correlating said images such that changes in location of characteristics of said region within successive images are computationally recognized;

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<sup>2</sup> (Avago's Response to Elan's Supplemental Reply Memorandum in Support of its Motion for Summary Judgment at 3, hereafter, "Response," Docket Item No. 304.)

<sup>3</sup> Unless otherwise indicated, all bold typeface is added by the Court for emphasis.

in response to said substeps (a), (b) and (c), forming a cursor-control signal that corresponds to computational recognition of said changes in location; and transmitting said cursor-control signal to said video display.

The Court considered the meaning of the phrase “images of a field of view of said array” in its First Claim Construction Order. (First Claim Construction Order at 10.) Since the Court found that the device of Claim 14 may operate in a three-dimensional environment, the Court declined to further construe the phrase. (*Id.*) Subsequent to the Court’s First Claim Construction Order, the Court revisited the disputed phrase in its Second Claim Construction Order. (Second Claim Construction Order at 6.) While construing the broader phrase “periodically forming largely overlapping images of a field of view of said array,” the Court construed the words “image,” “field of view,” and “said array.” (*Id.* at 6-11.) In particular, the Court stated as follows:

[T]he inventor used the word “image” to mean a periodically acquired set of pixel values. (*Id.* at 11, n.6.)

[T]he inventor used the phrase “field of view” to mean the region of the environment optoelectrically detectable by the array of photosensors. (*Id.* at 7-8.)

[T]he ‘804 Patent is using the phrase “said array” to mean the two-dimensional array of photosensors and associated circuitry of the hand-held device. (*Id.* at 6-7.)

Avago contends that these constructions are not correct because the word “image” as it is used in the ‘804 Patent requires the use of a “lens” and “field of view” requires imaging of the actual environment. (Response at 4.) Although the Court finds that its previous construction is correct, the Court takes this opportunity to review its analysis.

The ‘804 Patent frequently uses the words “image” and “field of view” throughout its specification. For instance, the ‘804 Patent discloses as follows:

[I]mage acquisition refers to the loading of new image data . . . [E]very 50 ms a new frame of pixel values is acquired from the sensor array . . . The process of loading a new reference image is referred to as a “frame transfer.” (‘804 Patent, Col. 11:35-40.)

The two-dimensional array of photosensors is used to acquire a reference frame for tracking the attitude of the device. (*Id.*, Col. 3:28-30.)

[T]he field of view . . . of the controller device during acquisition of the sample frame largely overlaps the field of view at the time of acquiring the reference frame. (*Id.*, 9:6-9.)

1 The reference frame is stored and a second image of features within a field of view of the  
array is acquired. (Id., Col. 3:30-31.)

2 The width of the field of view for imaging the environment is a matter of balancing the desire  
3 of capturing as much visible detail as possible with the requirement of avoiding excessive  
distortion. (Id., Col. 5:38-40.)

4 The specification discloses that the “image” described by the ‘804 Patent is acquired as data by an  
5 array of photosensors. The data is referred to as a “frame of pixel values.” Such a frame represents  
6 “features within the field of view of the array.” While it is true that the ‘804 Patent discloses the use  
7 of a lens to “provide[] an image . . . of the surrounding environment to the sensor array,” the  
8 specification notes that optics are “not critical.” (‘804 Patent, Col. 3:35-36, 5:28-30.) Thus, the  
9 Court’s construction of the words “image” and “field of view” is supported by the disclosures in the  
10 specification of the ‘804 Patent.<sup>4</sup>

11 The claims provide further support for the Court’s construction. Claim 1 of the ‘804 Patent  
12 contains a limitation that is not present in Claim 14. The additional step requires a user to attach “an  
13 optical means to [the] device to image features of an environment onto [the] photosensors.” The  
14 next step in Claim 1 is similar to the step in Claim 14 at issue above because it requires the  
15 utilization of an “array to acquire a first image of features within a field of view of said array.” The  
16 doctrine of claim differentiation allows the to Court consider whether a construction given to a word  
17 or phrase in one claim would render words in another claim superfluous. Curtiss-Wright Flow  
18 Control Corp., v. Velan, Inc., 438 F.3d 1374, 1381 (Fed. Cir. 2006); see Phillips, 415 F.3d at 1314.  
19 In applying this doctrine, it becomes apparent that “image” as it is used in the ‘804 Patent does not  
20 require the use of a lens. Otherwise, it would be unnecessary for the patentee to add the addition  
21 limitation requiring an “optical means” in Claim 1, since a lens is an “optical means.” Moreover,  
22 Claim 1 makes it apparent that “field of view” refers to the vantage of the array, not the “optical  
23 means.” Claim 1 does not reference “field of view” when describing the “optical means.” Instead,  
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26 <sup>4</sup> “[T]he specification may define claim terms ‘by implication’ such that the meaning may be  
27 ‘found in or ascertained by a reading of the patent documents.’” Irdeeto Access, Inc. v. Echostar  
Satellite Corp., 383 F.3d 1295, 1300 (Fed. Cir. 2004).

1 that Claim refers to use of the “optical means” in imaging “features of an environment.” In both  
 2 Claim 1 and Claim 14, the patentee makes it clear that “field of view” refers to the “field of view of  
 3 said array,” which is the array of photosensors.

4 In sum, the Court finds that its construction of words in the phrase “images of a field of view  
 5 of said array” is consistent with the understanding of one of ordinary skill in art and that further  
 6 construction of the phrase is unnecessary.

7 **B. Invalidity of Claim 14 of the ‘804 Patent**

8 Elan moves for summary judgment that Claim 14 of the ‘804 Patent is invalid because it is  
 9 anticipated by the ‘384 Patent under 35 U.S.C. § 102(b). (Motion at 5.)

10 An invention claimed in a patent is anticipated under § 102(b) if “the invention was patented  
 11 or described in a printed publication in this or a foreign country or in public use or on sale in this  
 12 country, more than one year prior to the date of the application for patent in the United States.”

13 Advanced Display Systems, Inc. v. Kent State University, 212 F.3d 1272, 1282 (Fed. Cir. 2000).

14 A determination that a patent is invalid as being anticipated requires a finding that “each and every  
 15 limitation is found either expressly or inherently in a single prior art reference.” Celeritas Techs.

16 Inc. v. Rockwell Int’l Corp., 150 F.3d 1354, 1360 (Fed. Cir. 1998). “Under the principles of

17 inherency, if the prior art necessarily functions in accordance with, or includes, the claims

18 limitations, it anticipates.” See In re Cruciferous Sprout Litig., 301 F.3d 1343, 1349 (Fed. Cir.

19 2002). When there is no genuine issue of material fact, a court may resolve a question of

20 anticipation on summary judgment. PowerOasis, Inc. v. T-Mobile USA, Inc., 522 F.3d 1299, 1301

21 (Fed. Cir. 2008) (affirming grant of summary judgment of anticipation under § 102(b));

22 Bristol-Myers Squibb Co. v. Ben Venue Laboratories, Inc., 246 F.3d 1368, 1381 (Fed. Cir. 2001).

23 Since an issued patent is presumed to be valid, a party challenging the patent must prove anticipation

24 by clear and convincing evidence. WMS Gaming, Inc. v. Int’l Game Techs., 184 F.3d 1339, 1355

25 (Fed. Cir. 1999).

The Court proceeds to consider (1) whether the '384 Patent is prior art under § 102(b), and if so, (2) whether it contains "each and every" limitation of Claim 14 of the '804 Patent.

**1. Prior Art Under § 102(b)**

The '384 Patent was issued by the United States Patent and Trademark Office on December 27, 1988. (See '384 Patent at 1.) The application for the '804 Patent was filed on October 6, 1995. (See '804 Patent at 1.) Based on these two dates, it is clear that the invention disclosed in the '384 Patent was patented "more than one year prior" to the date of the application for the '804 Patent. Thus, the '384 Patent qualifies as prior art under § 102(b), and the Court must examine whether it discloses "each and every" limitation of Claim 14 of the '804 Patent.

**2. Anticipation Under § 102(b)**

Avago contends that on the basis of undisputed evidence, Defendants cannot carry their burden to prove the '384 Patent anticipates Claim 14 of the '804 Patent because it does not disclose the following three limitations: (1) "periodically forming largely overlapping images of a field of view of said array;" (2) "storing a first image as a reference image;" and (3) "correlating said images such that changes in location of characteristics of said region within successive images are computationally recognized." (Avago's Opposition to Motion for Summary Judgment at 12-18, hereafter, "Opposition," Docket Item No. 257.) The Court considers whether the '384 discloses each of these limitations in turn.

**a. "periodically forming largely overlapping images of a field of view of said array"**

In its Second Claim Construction Order, the Court construed the subject limitation to mean:

[A]cquiring optoelectric signals from an array of photosensors and, using circuitry, converting the signals to values which represent the field of view to which the array is being exposed at discrete points in time. The substep of forming an image is not otherwise limited to any particular process. This substep includes processing of the signals from acquisition up to but not including storing as a frame.

(Second Claim Construction Order at 12.) It is undisputed that the '384 Patent discloses an array of photosensors that acquire optoelectric signals. ('384 Patent, 3:5-29.) Principally at issue is whether the "speckle patterns" disclosed in the '384 Patent are "images of a field of view."

As noted above, the Court has determined that the inventor used the word “image” to mean a “periodically acquired set of pixel values.” (Second Claim Construction Order at 11-12.) It is commonly understood that the word pixel refers to “any of the detecting elements of a charge-coupled device used as an optical sensor” such as a photosensor. MERRIAM-WEBSTER’S COLLEGIATE DICTIONARY, “pixel,” (11th ed. 2003). The ‘384 Patent claims an invention with an “array . . . having a plurality of photodetector cells and positioned in a path to receive a reflected **image** from said surface comprising a speckle pattern.” (‘384 Patent, Claim 10.) To acquire this image, the optical mouse disclosed in the patent employs a “light source” which illuminates a portion of a work surface “as the mouse is moved over its surface.”<sup>5</sup> (*Id.*, Col. 5:64-66.) The acquired image is a “speckle pattern” of the light and dark features of the illuminated work surface which are reflected onto the “detector array.” (*Id.*, Col. 5:66-68.) The ‘384 Patent explains that detector arrays may be composed of “a plurality of silicon photodetector cells.” (*Id.*, Col. 5:8-12.)

Further, the invention of the ‘384 Patent contemplates that the sample image will be acquired as values which are a “representation of the speckle pattern incident on the detector cells.” (*Id.*, Col. 6:45-68.) The detector cells acquire sample images in periodic sample windows “to provide useful information relative to motion and direction.” (*Id.*, Col. 6:13-29.) The time of the sample window is set such that saturation of the sample is avoided and, as analyzed in more detail below, a comparison may be made between the same or “overlapping” portions of the sample images. (*Id.*, Col. 6:13-29, 8:28-12:20, Claim 10.) Thus, the Court finds that the ‘385 Patent discloses an invention which “periodically form[s] largely overlapping images.”

The issue becomes whether the images are “of a field of view of said array.” The Court has construed the phrase “field of view” to mean the “region of the environment optoelectrically detectable by the array of photosensors.” (Second Claim Construction at 7-8.) In further construing

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<sup>5</sup> While the ‘384 Patent discloses the use of “coherent light” in a preferred embodiment, Claim 10 of the ‘384 Patent is not limited to coherent light. Claim 11, which depends from Claim 10 adds as its sole limitation that the reflection of light in Claim 10 is caused by illumination with coherent light. Under the doctrine of claim differentiation, the invention disclosed in Claim 10 does not require coherent light to generate the speckle pattern. *Curtiss-Wright*, 438 F.3d at 1381.

the subject limitation, the Court explained that the “field of view” is represented by optoelectric signals acquired from the photosensors, which are converted into values. (*Id.* at 12.) Notably, the Court’s construction does not require that the image must be an exact image of the environment. While the environment must be “detectable,” and the image must correspond with that which was detected, “the substep of forming an image is not otherwise limited to any particular process.” (*Id.*) In one embodiment described in the ‘384 Patent, the environment is “a surface area” positioned relative to the device. (*See, e.g.*, ‘384 Patent, Col. 2:37.) When light is reflected from the surface area, it forms a speckle pattern consisting of light and dark features. (*Id.*, Col. 2:43-44.) A detector array comprising a plurality of photodetector cells is “positioned in the path to receive the reflected light and to detect the light and dark features in the reflected light.” (*Id.*, Col. 2:45-49.) The image acquired by the array of photodetectors is “representative of a sample of the speckle pattern.” (*Id.*, Col. 2:49-50.)

Accordingly, the Court finds that the ‘384 Patent discloses an invention capable of “periodically forming largely overlapping images of a field of view of said array.”

**b. “storing a first image as a reference image”**

In its First Claim Construction Order, the Court construed the subject limitation to mean:

[S]toring a first set of pixel values representing that which is captured by the array of photosensors as the reference image.

(First Claim Construction Order at 11.) The parties do not dispute that the ‘384 Patent discloses storing a first sample “speckle pattern” and a reference sample “speckle pattern.” For instance, in describing one embodiment of the invention disclosed in the ‘384 Patent, the patentee states:

The detector array comprises a plurality of photodetector elements or cells that are permitted to detect light features of the pattern within a dynamically determined period of time. The read out of the detected values from the array is a representation of a sample of the speckle pattern. (‘384 Patent, Col. 3:12-17.)

[T]he values in the array sampled may . . . be shifted out . . . into shift registers . . . . (*Id.*, Col. 7:65-67.)

[T]he values in shift registers 42A and 42B represent the most recent or instant valid sample, termed THIS TIME, and the values in shift registers 44A and 44B represent the immediately past or last valid sample, termed LAST TIME. (*Id.*, Col. 8:10-14.)

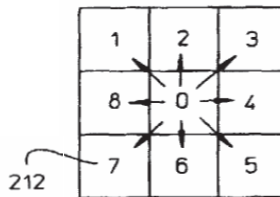
In this way, the '384 Patent refers to a first image as a sample called "THIS TIME," and to a reference image as a sample called "LAST TIME." Avago's only contention with respect to this limitation is the same argument analyzed above, that the speckle pattern referred to in the specification of the '384 Patent is not an "image" as claimed in Claim 14 of the '804 Patent. However, as set forth in Section IV.B.2.a., no reasonable jury could find that the '384 Patent does not disclose an "image" as that word has been construed by the Court.

Accordingly, the Court finds that the '384 Patent discloses an invention capable of "storing a first image as a reference image."

**c. "correlating said images such that changes in location of characteristics of said region within successive images are computationally recognized"**

This limitation has not been construed by the Court. Avago contends that '384 Patent does not disclose computationally recognizing changes in location of characteristics of a region within successive images because the invention does not mathematically compare gray values of successive samples. (Opposition at 18.) The Court examines the specification of the '804 Patent to put the "correlating" limitation in context and to clarify what is required to anticipate this limitation.

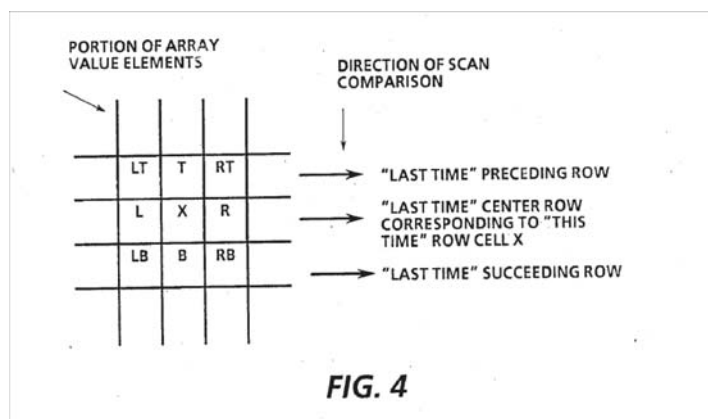
The specification of the '804 Patent describes how a first image may be compared with a "sample image" to determine whether the two images "include a number of common features." ('804 Patent, Col. 3:11-35.) The '804 Patent further provides that "the correlations compare the positions of imaged features in successive frames." (*Id.*, Col. 8:55-58.) This process is visually represented by Figure 5, as follows:



**Fig. 5**

1 The correlation step disclosed in the '804 Patent is a shifting of the arrangement of the pixel values  
 2 to the nearest-neighbor pixel cells. (*Id.*, Col. 9:18-20.) The specification of the '804 Patent  
 3 discloses that "[t]he shifting is performed sequentially for each of eight nearest-neighbor pixel cells,  
 4 as represented by member 212 in FIG. 5." (*Id.*, Col. 9:20-25.) The '804 Patent further discloses that  
 5 "[e]ight shifts of the reference frame represented by member 212 occur one at a time, but all pixel  
 6 values are shifted uniformly" and that "[c]orrelations are used to find the locations of common  
 7 features . . . of successive frames . . . in order to track the angular orientation of the controller  
 8 device." (*Id.*, Col. 9:25-30, 9:51-53.)

9 The '384 Patent similarly discloses processing "the data signals developed from the detector  
 10 array to . . . compare a new sample with a previous sample." ('384 Patent, Col. 3:67-67.) The step  
 11 of "autocorrelation" disclosed in the '384 Patent is visually explained with Figure 4, shown below.



21 There are eight positions shown in Figure 4, "top (T), left top (LT), left (L), left bottom (LB),  
 22 bottom (B), right bottom (RB), right (R) and right top (RT)." (*Id.*, Col. 8:58-62.) The '384 Patent  
 23 explains that "[f]or each cell in the array, a comparison for identical values is made relative to each  
 24 of those eight adjacent cell positions and the tally of those eight comparisons for each cell position  
 25 in the array is maintained in a respective counter until the process is complete for an entire sample  
 26 comparison." (*Id.*, Col. 8:62-67.) This process allows for the detection of movement as follows:

If any of the eight comparisons provide an indication of being the same, whether a dark feature or a light feature, then there is a possibility that the pattern feature being detected has “moved” to new cell position. . . . It can be seen, then, that if the preponderance is that a certain majority of light features detected in the speckle pattern presented to the array have moved in a given direction and also a certain majority of dark features have moved in the same given direction, a reliable indication has been derived that the relative motion between the array 16 and the reflecting surface 14 is in the given direction.

(*Id.*, Col. 9:24-40.) The process disclosed in the ‘384 Patent describes every material detail of the process for correlation claimed in Claim 14 of ‘804 Patent.


Accordingly, the Court finds that the ‘384 Patent discloses an invention capable of “correlating said images such that changes in location of characteristics of said region within successive images are computationally recognized.”

In sum, the Court finds that there is no genuine dispute that each and every limitation of Claim 14 of the ‘804 Patent may be found in the ‘384 Patent. Accordingly, Claim 14 of the ‘804 Patent is anticipated by the ‘384 Patent.

#### **V. CONCLUSION**

The Court Grants Elan’s Motion for Summary Judgment of Invalidity of Claim 14 of the ‘804 Patent. In light of the Court’s finding of invalidity of Claim 14 of the ‘804 Patent, the Court DENIES the parties’ cross-motions for summary judgment<sup>6</sup> on the issue of infringement of Claim 14 of the ‘804 Patent as moot.<sup>7</sup>

Dated: August 14, 2008

  
 JAMES WARE  
 United States District Judge

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<sup>6</sup> (Docket Item Nos. 267, 277.)

<sup>7</sup> See Sandt Tech., Ltd. v. Resco Metal and Plastics Corp., 264 F.3d 1344, 1356 (Fed. Cir. 2001); B.F. Goodrich Co. v. Aircraft Braking Sys., Corp., 72 F.3d 1577, 1583 (Fed. Cir. 1996) (noting that where “claims . . . are invalid . . . [the Court] need not reach the issues relating to . . . infringement”).

**THIS IS TO CERTIFY THAT COPIES OF THIS ORDER HAVE BEEN DELIVERED TO:**

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**Dated: August 14, 2008**

**Richard W. Wieking, Clerk**

By: /s/ JW Chambers  
**Elizabeth Garcia**  
**Courtroom Deputy**